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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/797,068	03/11/2004	Yih-Feng Hwang	ASH-03-010	4377
25537	7590	05/19/2009		
VERIZON PATENT MANAGEMENT GROUP 1320 North Court House Road 9th Floor ARLINGTON, VA 22201-2909			EXAMINER DENG, ANNA CHEN	
			ART UNIT	PAPER NUMBER
			2191	
			NOTIFICATION DATE	DELIVERY MODE
			05/19/2009 ELECTRONIC	

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patents@verizon.com

Office Action Summary

Application No.

10/797,068

Applicant(s)

HWANG, YIH-FENG

Examiner

ANNA DENG

Art Unit

2191

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 March 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/23/2009 has been entered.
2. The rejection under 35 U.S.C. 112, second paragraph to claims 22-28 is withdrawn in view of applicant's amendment.

Response to Amendment

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 9-16, and 22-28 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 9 contains subject matter "memory", in the Specification, page 6, paragraph [0024], recites "...may be stored in a computer-readable medium, such as memory 130. A computer-readable medium may be defined as a physical or logical memory device and/or carrier wave". Therefore, according to the Specification, a

memory is a computer-readable medium, and a computer-readable medium can be carrier wave, and thus non-statutory subject matter.

Claims 8-16 are rejected for failing to cure the deficiencies of the above rejected base claim 9.

Claim 22 set forth a computer-readable memory device, in the Specification, page 6, paragraph [0024], recites "...may be stored in a computer-readable medium, such as memory 130. A computer-readable medium may be defined as a physical or logical memory device and/or carrier wave". Therefore, according to the Specification, a computer-readable memory device can be a logical memory device (software only) or carrier wave (signal), and thus non-statutory subject matter.

Claims 23-28 are rejected for failing to cure the deficiencies of the above rejected base claim 22.

Applicant is suggested to amend the Specification to delete "logical memory device and carrier wave" from the computer-readable medium.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-4, 6-12, 14-25, and 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chan et al. USPN 6910,028 B2 (hereinafter Chan), in view of

applicant submitted IDS, "Detecting Faults In Chained-Inference Rules In Information Distribution Systems" by Hwang et al. Summer, 1997 (art of record hereinafter Hwang).

Per Claim 1 (Currently Amended):

Chan teaches **identifying, by a processor of the computer, a scope of the integration** (Chan, col. 4, lines 22-32, providing a merge policy to said assimilator device; assimilating the rulesets to produce a new merged ruleset comprising logic required for resolving potential conflicts among rules in accordance with the merge policy) **based on a multi-level top-down approach** (Chan, col. 1, lines 49-67, many rule based systems support backward and forward chaining. Forward chaining is the process of moving from the "if patterns to the "then" patterns, using the "if" patterns to identify appropriate situations for the deduction of a new assertion or fact or the execution of an action").

Chan does not explicitly teach identifying, by a processor, faults in business rules that define software in the scope of the integration by applying generic depth-first search (DFS)-based techniques to the business rules; modifying, by the processor, the business rules based on the identified faults.

However, Hwang teaches **identifying, by the processor, faults in business rules that define software in the scope of the integration by applying generic depth-first search (DFS)-based techniques to the business rules** (Hwang, for example, p. 7, 3rd paragraph, Rule identifiers are used inside a TDG so that more information can be extracted when a fault pattern is found. The depth-first search

algorithmic pattern is used to develop algorithms used to detect chained-inference faults in an IDS rule set of an IDS node); **and modifying, by the processor, the business rules based on the identified faults** (Hwang, for example, Figure 2-1, Rule-Maintenance Toolkit for IDS, p.21, 2nd paragraph, the error-removal module removes the dynamic/execution rule errors and optimizes the rule sets. After such correction and optimization of the dynamic/execution rule errors, the modified and optimized rule sets are passed into the fault-inspecting-and-correcting module to detect static logic rule faults, such as inconsistency faults, and to correct such faults found);

It would have been obvious to one having ordinary skill in the computer art at the time of the invention was made to modify the method disclosed by Chan to include identifying, by a processor, faults in business rules that define software in the scope of the integration by applying generic depth-first search (DFS)-based techniques to the business rules; modifying, by the processor, the business rules based on the identified faults using the teaching of Hwang. The modification would be obvious because one of ordinary skill in the art would be motivated to provide algorithms that will effectively and effectively detect chained-inference faults in information distribution system(IDS) rule (Hwang, p. 2, lines 1-2).

Per Claim 2:

The rejection of claim 1 is incorporated, and further, Hwang teaches **where identifying faults in the business rules includes representing the business rules using a transition-directed graph (TDG) representation** (Hwang, for example, p. 38,

lines 5-9, A new digraph paradigm called Transition-Directed Graph (TDG) is presented in this chapter. Based on this TDG representation, faults in IDS rule sets are defined as undesirable patterns appearing in a given TDG).

Per Claim 3:

The rejection of claim 1 is incorporated, Chan further teaches **wherein the multi-level top-down approach includes: a first level that includes high-level software systems** (Chan, col. 6, lines 11-20, FIG. 2 is a diagram depicting the high-level interaction between the various components underlying the conflict handling and assimilator service 19 for rule-based knowledge systems and applications).

Per Claim 4:

The rejection of claim 3 is incorporated, Chan further teaches **wherein the multi-level top-down approach further includes: a second level that includes business processes of the high-level software systems** (Chan, col. col. 6, lines 11-20, the various components underlying the conflict handling and assimilator service 19 for rule-based knowledge systems and applications).

Per Claim 6:

The rejection of claim 4 is incorporated, Chan further teaches **comparing the business processes to locate similar business processes that are to be integrated** (Chan, col. 4, lines 8-15, provide for a flexible assimilator service that allows for the

exchange or merger of rulesets (e.g., business policies) with different originating formats in a distributed environment).

Per Claim 7:

The rejection of claim 1 is incorporated, Chan further teaches **wherein identifying the scope of the integration is performed on software systems from multiple merging entities** (Chan, col. 4, lines 8-15, provide for a flexible assimilator service that allows for the exchange or merger of rulesets (e.g., business policies) with different originating formats in a distributed environment).

Per Claim 8:

The rejection of claim 1 is incorporated, and further, Hwang teaches **where the identified faults include faults of at least one of inconsistency, contradiction, circularity, subsumption, redundancy, and incompleteness** (Hwang, for example, p.68-p.73, see section 5.1.1, Inconsistency; section 5.1.2 Contradiction, 5.1.3, Circularity, 5.1.4 Redundancy/Subsumption).

Per Claims 9-12, and 14-16:

These are computer-implemented system versions of the claimed method discussed above (claims 1-4, and 6-8), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

Per Claims 17-21:

These are another versions of the claimed method discussed above (claims 1-4, and 6-8), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

Per Claims 22-25, and 27-28:

These are computer-readable memory device versions of the claimed method discussed above (claims 1-4, and 6-8), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

7. Claims 5, 13, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chan et al. USPN 6910,028 B2 (hereinafter Chan), in view of in view of applicant submitted IDS, "Detecting Faults In Chained-Inference Rules Information Distribution Systems" by Hwang et al., Summer, 1997 (art of record hereinafter Hwang), further in view of Bahrami, US PUB 2004/0078777 A1 (hereinafter Bahrami).

Per Claim 5:

The rejection of claim 4 is incorporated, and further, the combination of Chan and Hwang does not explicitly teaches **wherein the multi-level top-down approach further includes: a third level that includes business rules that are defined as**

transitions in the business processes; a fourth level that includes interface functions that define communications between the business rules; and a fifth level that includes data used by the business rules and the interface functions.

However, Bahrami teaches **wherein the multi-level top-down approach further includes: a third level that includes business rules that are defined as transitions in the business processes; a fourth level that includes interface functions that define communications between the business rules; and a fifth level that includes data used by the business rules and the interface functions** (Bahrami, [0032], a plurality of levels of detail can be shown in activity diagrams where hierarchical process modeling is used. In hierarchical process modeling, a process is modeled on a plurality of levels of detail, such that lower levels or sub-processes are included in higher level processes), .

It would have been obvious to one having ordinary skill in the computer art at the time of the invention was made to modify the method disclosed by the combination of Chan and Hwang to include wherein the multi-level top-down approach further includes: a third level that includes business rules that are defined as transitions in the business processes; a fourth level that includes interface functions that define communications between the business rules; and a fifth level that includes data used by the business rules and the interface functions using the teaching of Bahrami. The modification would be obvious because one of ordinary skill in the art would be motivated to provide closed-loop analysis of a business process (Bahrami, [0005]).

Per Claim 13:

This is computer-implemented system version of the claimed method discussed above (claim 5), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, this claim is also obvious.

Per Claim 26:

This is computer-readable medium version of the claimed method discussed above (claim 5), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, this claim is also obvious.

Response to Arguments

8. Applicant's arguments filed 3/23/2009 have been fully considered but they are not persuasive.

Applicant argued:

Chan and Hwang do not disclose or suggest identifying faults in business rules that define software in the scope of the integration of software system by applying generic depth-first search (DFS)-based techniques to the business rules.

Examiner response:

Hwang does teach identifying faults in business rules that define software in the scope of the integration by applying generic depth-first search (DFS)-based techniques

to the business rules, see Hwang, for example, p. 7, 3rd paragraph, Rule identifiers are used inside a TDG so that more information can be extracted when a fault pattern is found. The depth-first search algorithmic pattern is used to develop algorithms used to detect chained-inference faults in an IDS rule set of an IDS node. Here, Hwang applying generic DFS techniques to identify faults in rules that include business rules.

Applicant argued:

Chan and Hwang do not disclose or suggest representing the business rules using a transition-directed graph (TDG) representation.

Examiner response:

Hwang does disclose and suggest where identifying faults in the business rules includes representing the business rules using a transition-directed graph (TDG) representation, see Hwang, for example, p. 38, lines 5-9, A new digraph paradigm called Transition-Directed Graph (TDG) is presented in this chapter. Based on this TDG representation, faults in IDS rule sets are defined as undesirable patterns appearing in a given TDG. Here, Hwang TDG should be used to identifying faults in rules that include business rules.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Any inquiry concerning this communication or earlier

communications from the examiner should be directed to Anna Deng whose telephone number is 571-272-5989. The examiner can normally be reached on Monday to Friday 9:30 AM - 6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wei Zhen can be reached at 571 -272-3708. The fax phone number for the organization where this application or proceeding is assigned is 703-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Anna Deng/

Examiner, Art Unit 2191

5/13/2009